



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,609	11/20/2003	Balakrishnan Sridhar	605	7137
22474	7590	11/20/2006	EXAMINER	
DOUGHERTY CLEMENTS 1901 ROXBOROUGH ROAD SUITE 300 CHARLOTTE, NC 28211			DIACOU, ARI M	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/716,609	SRIDHAR ET AL.	
	Examiner	Art Unit	
	Ari M. Diacou	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 13 September 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 15-31 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 15-31 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. In the remarks dated 9-13-2006, the applicant makes the following arguments:
 - a. On page 11, that "There is no hint or suggestion in the reference of the "gain threshold mode" of the present invention, whereby gain and output power are held constant, used when the optical amplifier system as a whole is "stable" to flatten out "drift" in the output power, nor of selectively switching back-and-forth between the two modes based on a thresholding method, as disclosed and claimed."
2. Argument A is unconvincing for several reasons. First, the definition of gain threshold mode as used in the quoted argument is not claimed. Second, the new limitations to the claim are indefinite for being method limitations in an apparatus claim, not merely benign functional language. Third, even if the limitations were amended to be in the form of benign functional language, the structure of Ye is still capable of performing the function the applicant is trying to claim. Figure 7 of Ye discloses a flowchart whereby the amplifier detects if the output power is above a threshold, and if it is, takes steps to control the gain. Without a contrary definition in the specification, the examiner can reasonably expect the amplifier of Ye to operate in a "gain threshold mode". Furthermore, the word "threshold" is explicitly used in [Fig. 7, #720]. In addition, the device of Ye switches from gain G1 to gain G2 based on the input signal value.

[Cols. 10 and 11]

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 15-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 15, recites method limitations in an apparatus claim. This was held to be indefinite because it is unclear whether infringement exists when the device is made, or when the device is being operated in the proscribed manner. See *Ex parte Lyell (BdPatApp&Int) 17 USPQ2d 1548 and IPXL Holdings, LLC v. Amazon.com, Inc., 05-1009, -1487 (Fed. Cir. 11/21/2005)*

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Because the instant application has not been published, the following claim language appearing in the office action was OCRed from a scanned copy of the claims. While the examiner has taken pains to ensure accuracy, it is possible that discrepancies exist

9. Claims 15-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al. (USP No. 6417965) in view of Kinoshita et al. (USPAP No. 2002/0001124).

- Regarding claim 15, Ye discloses An optical amplifying apparatus, comprising:
 - an optical amplifying device; [Fig. 2, #240]
 - a controlling device configured for operating said optical amplifying device in one of a gain threshold mode and a constant gain mode, said

controlling device further configured for switching the optical amplifying device from operating in the gain threshold mode to operating in the constant gain mode when an absolute value of a gain error exceeds a gain threshold, wherein the gain error is a difference between a target gain and a gain of the optical amplifying device; and [Fig. 7] [Col. 9, line 66 – Col. 10, line 30]

- a measuring device configured to measure an input power (P_{in}) of the optical amplifying device, said measuring device also configured to communicate with said controlling device. [#232 and #233]
- *wherein the controlling device selectively switches back and forth between the gain threshold mode and the constant gain mode, and*
- *wherein, while operating in the constant gain mode, the gain threshold mode is re-enabled when no transient events occur during a lockout period.* [The Italicized clauses are method limitations in an apparatus claim. The fourth stanza of this claim recites the same limitations as those in the second stanza which have already been addressed, but phrases them in method limitations, instead of functional language. The fifth stanza recites method limitations which the device disclosed by Ye and Kinoshita is capable of performing. Ye's device operates by having 2 taps, 220-224-228-232 and 221-225-229-233, one is sensitive to low inputs and one is sensitive to high inputs, when the low input is making reliable measurements, the controller decides to operate the gain stage at gain

G1, and when the low tap saturates, the high tap receives reliable data, and the controller, among other things, might switch to gain G2 (such as in the case of a transient), since the algorithm for performing this gain switching is all coded into controller 236, the device of Ye is definitely capable of performing the applicant's claimed method.]

but fails to disclose the power being measured from the input and output power.

Kinoshita teaches measuring both the output and input power and

calculating/looking-up the gain on the fly [Fig. 5, #81, #82] [¶ 0074-0075].

Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to monitor the output and input, for the advantage of maintaining the gain of the optical amplifier.

10. Claims 15-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ye et al. (USP No. 6417965) in view of Kinoshita et al. (USPAP No. 2002/0001124) and further in view of Zahnly et al. (PGPub 2002/0176156).

- Regarding claim 15, Ye discloses An optical amplifying apparatus, comprising:
 - an optical amplifying device; [106 and 112]
 - a controlling device [234, 235 and 236] configured for operating said optical amplifying device in one of a gain threshold mode and a constant gain mode, said controlling device further configured for switching the optical amplifying device from operating in the gain threshold mode to operating in the constant gain mode when an absolute value of a gain

- error exceeds a gain threshold, wherein the gain error is a difference between a target gain and a gain of the optical amplifying device; and
- o a measuring device configured to measure an input power (P_{in}) of the optical amplifying device, said measuring device also configured to communicate with said controlling device. [105]

but fails to disclose the power being measured from the input and output power, as well as the method of switching gains. Kinoshita teaches measuring both the output and input power and calculating/looking-up the gain on the fly [Fig. 5, #81, #82] [¶ 0074-0075]. Zhanley teaches

- o *wherein the controlling device selectively switches back and forth between the gain threshold mode and the constant gain mode, and [0049]*
- o *wherein, while operating in the constant gain mode, the gain threshold mode is re-enabled when no transient events occur during a lockout period. [0049]*

Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to monitor the output and input, for the advantage of maintaining the gain of the optical amplifier.

- Regarding claim 17, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, Kinoshita further discloses:
 - o a plurality of optical amplifier stages connected in series, wherein an input of a first optical amplifier stage is an input of said amplifying device; and [Fig. 13, #61-1 and #61-2]

Art Unit: 3663

- one or more variable optical attenuators (VOA) connected in series with said optical amplifier stages such that each VOA receives an output of one optical amplifier stage and outputs to a next optical amplifier stage, wherein at least one VOA is controlled by said controlling device, [Fig. 13, #52]
- wherein said measuring device is further configured to measure power levels on a plurality of points along a connected chain of said plurality of optical amplifier stages and VOAs. [Fig. 13, #75]
- Regarding claim 23, Ye and Kinoshita or Ye in view of Kinoshita and Zhanley, disclose the invention with all the limitations of claim 15 above, but in addition Ye Kinoshita teaches that a variable optical attenuator may be placed at the input 8 of any of the optical amplifier species disclosed in 2002/0001124 [¶ 0055]. Further Ye discloses in figure 1 that an indefinite chain of optical amplifier stages may be serially compiled to produce a viable transmission system. [Fig. 1, #18] [Col. 3, lines 30-67] Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to place the optical amplifier of figure 5 of Kinoshita into module 18 of figure 1 of Ye thereby comprising the limitations of claim 23, for the advantage of creating a transmission link of a length that would necessitate a plurality of amplifier nodes.
- Regarding claim 16, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, Ye further discloses at least one of the gain threshold and the target gain are predetermined. [Col. 10, lines 11-16]

- Regarding claims 19 and 24, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, Kinoshita further discloses automatic level control being utilized. [Fig. 13, #51]
- Regarding claims 20 and 29, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, Ye further discloses the capability to deal with transient events [Col. 5, lines 4-16], but fails to mention a predetermined time to being response. Read broadly however, the examiner considers zero delay time to be a predetermined amount of time, since its designers had to determine that time before the device was built.
- Regarding claims 18 and 28, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, Kinoshita further discloses a DCF with signal sampling being taken at the input and output of the DCF. [Fig. 13, #75]
- Regarding claims 22/26/31 and 27, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, the limitations provided in the claims are merely the definitions of the terms “transient event” and “VOA” commonly accepted in the art.
- Regarding claim 25, the parent claim being rejected over Ye in view of Kinoshita above, or Ye in view of Kinoshita and Zhanley, the lockout time while not mentioned in Ye, may be regarded as the response time of the circuit in figure 8B.
- Claims 22 and 31 are rejected as reading on Kinoshita’s teaching of ALC [0072].

11. The italicized clauses are essentially method limitations or statements or intended or desired use and are being examined as if the apparatus were capable of performing the functions described in said clauses. The applicant is claiming an apparatus, not a method or process. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

14. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Miraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

15. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMD 11/15/2006

JACK KEITH
SUPERVISORY PATENT EXAMINER